RAILWAY AGE

August 11, 1980

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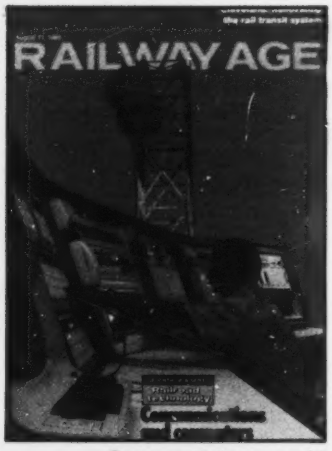
FEATURES



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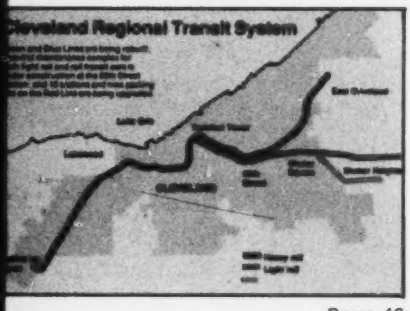

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16 Railroad technology, Part VII
Communications and computers
From small and simple beginnings in the 19th century, railroad communications has become an enormously complex business, and costly (about $1.4 billion a year). This article explores the state of the art in a time of furiously paced change.

26 Computerized car scheduling
Missouri Pacific is finding that car scheduling can be a tool for providing a very high level of service—or, in recessionary times, a tool for providing a satisfactory level of service at a substantially lower cost.

32 Grade crossing safety: Still a long way to go
Crossing fatalities have dropped dramatically in the last decade, due partly to heavy federal investment in crossing protection, but future funding is uncertain. Meantime, greater coordination among the parties involved is essential.

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46 Cleveland: Renovating the rail transit system
A key part of Cleveland's $270-million program involves rebuilding and reequipping the Shaker Heights trolley line. Says RTA Operations Manager Thompson Nooner: "It's the equivalent of turning a country road into an interstate highway."

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COVER: TRAIN II, at AAR's Technical Control Center, Washington, D.C., was photographed by Ray Cassidy; microwave antenna photo from Burlington Northern.

QUARTERLY INDEXES

Railroad charge-out prices and wage rates (Average 1967 = 100)

(Charge-out indexes reflect the original purchase price of fuel, material, and supplies charged to railroad operating expense accounts on the first day of the quarter. The indexes are developed from quarterly spot price indexes by providing appropriate lags between time of purchase and time charged to operating expense accounts. Wage rate indexes are based on average straight time hourly rates for the first month of the quarter; wage supplements indexes are based on the average per straight time hour paid for payroll taxes, health and welfare benefits, vacations, holidays, and other allowances.)

District and group	Apr. 1977	July 1977	Oct. 1977	Jan. 1978a	Apr. 1978a	July 1978a	Oct. 1978a	Jan. 1979	Apr. 1979	July 1979	Oct. 1979	Jan. 1980	Apr. 1980
UNITED STATES:													
Fuel	381.1	395.3	399.0	403.1	405.9	405.0	407.2	419.7	469.6	603.2	739.7	818.1	886.5
Other materials & supplies	213.8	216.8	221.3	224.4	227.0	230.2	233.4	239.1	245.7	250.4	260.2	268.3	283.6
All material incl. fuel	260.6	266.5	270.9	274.3	277.0	279.2	282.1	289.8	307.5	345.6	387.9	414.4	443.5
Wage rates	220.0	231.3	232.8	240.8	248.2	254.8	259.7	267.5	267.5	285.6	285.6	294.0	294.0
Material prices & wages (and fuel)	232.7	242.3	244.7	251.3	257.2	262.4	266.7	274.5	280.0	304.4	317.6	331.7	340.8
Wages & supplements	243.1	253.5	254.7	267.2	272.9	278.1	281.9	294.1	294.1	311.4	311.4	321.6	321.6
Material prices, wages & supplements (excl. fuel)	237.4	246.4	248.2	259.9	263.9	268.8	272.4	283.4	284.7	299.5	301.4	311.2	314.2
Material prices, wages & supplements (incl. fuel)	247.9	257.1	259.2	269.2	274.0	278.4	282.0	292.9	297.8	320.8	332.4	347.1	355.1
EASTERN DISTRICT:													
Fuel	386.7	405.0	407.6	411.1	416.3	413.4	413.1	422.1	476.3	580.1	713.7	795.9	858.9
Other materials & supplies	208.5	210.2	213.4	216.2	217.2	221.5	226.0	230.2	239.6	243.0	252.9	260.8	271.4
All material incl. fuel	257.4	263.5	266.4	269.6	271.6	274.1	277.4	282.9	304.0	333.1	374.7	402.0	426.1
Wage rates	220.6	229.9	232.8	242.6	249.5	257.7	262.6	270.4	270.4	288.5	288.5	297.0	297.0
Material prices & wages (and fuel)	230.4	238.9	241.8	249.8	255.4	262.1	266.6	273.7	279.4	300.4	311.5	325.0	331.5
Wages & supplements	243.9	252.8	255.1	270.3	275.8	282.1	285.9	298.2	298.2	315.7	315.7	326.7	326.7
Material prices, wages & supplements (excl. fuel)	238.2	246.0	248.3	261.5	266.3	272.3	276.2	287.2	288.7	303.9	305.5	316.0	317.7
Material prices, wages & supplements (incl. fuel)	247.0	255.3	257.7	270.1	274.8	280.2	283.9	294.6	299.6	319.8	329.4	344.2	349.9
SOUTHERN DISTRICT:													
Fuel	354.3	369.3	372.2	375.6	375.3	373.0	374.7	389.1	428.4	509.3	622.7	695.7	767.0
Other materials & supplies	209.9	213.3	217.9	220.0	223.3	226.1	229.5	234.7	240.4	246.3	254.0	262.4	275.3
All material incl. fuel	248.6	255.0	259.2	261.6	263.9	265.4	268.4	276.0	290.7	316.8	353.2	378.9	407.6
Wage rates	219.4	233.6	233.2	239.6	248.9	255.5	260.4	268.3	268.3	286.5	286.5	295.0	295.0
Material prices & wages (and fuel)	229.4	240.9	242.1	247.1	254.0	258.9	263.1	270.9	275.9	296.8	309.2	323.6	333.4
Wages & supplements	243.5	256.3	255.9	265.9	273.2	278.5	282.4	294.3	294.3	311.8	311.8	324.3	324.3
Material prices, wages & supplements (excl. fuel)	236.2	247.0	247.7	256.0	262.4	267.2	271.0	281.4	282.7	297.7	299.3	310.9	313.7
Material prices, wages & supplements (incl. fuel)	245.0	255.9	256.9	264.6	270.4	274.6	278.2	288.8	293.2	313.3	324.3	340.7	349.4
WESTERN DISTRICT:													
Fuel	387.7	399.6	404.1	409.2	411.5	412.1	416.0	429.1	480.8	650.1	796.6	874.6	944.0
Other materials & supplies	218.5	221.9	227.2	230.8	233.7	236.5	239.2	244.7	251.6	256.3	266.8	274.8	293.3
All material incl. fuel	268.3	274.0	279.3	283.4	286.2	288.5	291.7	299.3	317.9	364.7	410.3	436.5	468.4
Wage rates	220.0	231.9	232.8	240.3	247.1	253.0	257.9	265.8	265.8	283.7	283.7	292.2	292.2
Material prices & wages (and fuel)	236.3	246.1	248.5	254.8	260.3	265.0	269.3	277.1	283.4	311.0	326.4	340.8	351.6
Wages & supplements	243.7	253.7	254.4	265.9	271.2	257.8	279.6	291.7	291.7	309.0	309.0	318.6	318.6
Material prices, wages & supplements (excl. fuel)	237.6	246.9	248.6	258.4	263.2	267.4	271.0	281.6	283.1	297.7	300.0	309.2	313.2
Material prices, wages & supplements (incl. fuel)	250.4	259.7	261.8	271.1	275.7	279.6	283.2	294.0	299.5	325.5	339.1	353.6	363.1

a—Wage rates in 1978 reflect the effects of retroactive pay increases applicable to time worked in 1978 but paid in 1979.

Spot prices of railroad fuel, material, and supplies (Average 1967 = 100)

(Spot price indexes reflect the price on the first day of the respective month of 65 major items of railroad purchases reported by 10 major railroads representing about two-thirds of total purchases by all Class I railroads.)

District and group	Apr. 1977	July 1977	Oct. 1977	Jan. 1978	Apr. 1978	July 1978	Oct. 1978	Jan. 1979	Apr. 1979	July 1979	Oct 1979	Jan. 1980	Apr. 1980
UNITED STATES:													
Fuel (diesel oil)	389.9	398.1	399.7	405.0	406.2	404.4	408.8	425.4	491.6	659.1	780.2	837.3	911.0
Forest products	225.2	229.4	234.0	240.0	240.9	250.8	258.6	264.5	272.3	286.2	297.2	321.6	333.9
Iron & steel prod.	224.1	230.1	233.1	235.4	242.5	245.8	252.4	263.0	268.7	277.5	286.9	305.3	310.0
Miscellaneous prod.	212.1	215.7	218.2	220.1	221.3	222.5	227.0	231.1	234.3	243.7	250.4	261.1	275.0
Total, excl. fuel	216.8	221.3	224.4	227.0	230.2	233.4	239.1	245.7	250.4	260.2	268.3	283.6	293.8
Total, incl. fuel	265.1	270.7	273.4	276.5	279.5	281.5	286.8	296.3	316.9	367.3	404.7	430.9	457.6
EASTERN DISTRICT:													
Fuel (diesel oil)	397.3	408.9	407.0	413.4	417.9	411.1	414.0	426.0	501.4	619.6	760.9	813.3	881.7
Forest products	212.4	217.9	220.9	224.8	225.4	234.2	237.5	251.0	254.6	267.0	274.8	280.9	282.3
Iron & steel prod.	213.5	218.8	221.6	221.6	229.9	234.1	240.1	251.6	257.1	266.0	274.0	290.6	294.0
Miscellaneous prod.	212.8	213.1	215.6	216.8	218.4	222.0	224.4	231.0	232.4	242.8	250.6	257.4	265.9
Total, excl. fuel	210.2	213.4	216.2	217.2	221.5	226.0	230.2	239.6	243.0	252.9	260.8	271.4	276.7
Total, incl. fuel	261.5	266.9	268.4	270.9	275.2	277.0	280.8	291.2	313.0	350.9	393.0	414.4	436.0
SOUTHERN DISTRICT:													
Fuel (diesel oil)	364.2	371.9	372.2	377.3	374.4	372.4	375.8	395.9	444.8	541.6	663.4	711.8	794.4
Forest products	227.4	232.2	230.4	240.2	242.0	255.4	258.7	266.5	276.9	288.4	299.7	309.7	315.8
Iron & steel prod.	226.2	232.6	236.2	238.0	245.5	247.3	254.3	263.1	269.3	277.4	288.0	304.5	308.5
Miscellaneous prod.	205.9	209.0	211.1	213.7	212.1	213.5	217.8	219.9	224.0	230.2	235.9	247.1	261.7
Total, excl. fuel	213.3	217.9	220.0	223.3	226.1	229.5	234.7	240.4	246.3	254.0	262.4	275.3	284.1
Total, incl. fuel	253.7	259.3	260.7	264.6	265.8	267.8	272.4	282.0	299.4	331.3	370.2	392.7	421.2
WESTERN DISTRICT:													
Fuel (diesel oil)	395.4	401.8	405.4	410.5	412.1	412.1	417.9	434.9	503.6	723.0	833.2	895.5	968.4
Forest products	237.1	240.7	250.2	254.8	255.8	265.2	259.9	279.0	288.0	304.2	317.5	357.2	378.6
Iron & steel prod.	221.7	227.6	230.6	233.7	238.9	242.8	250.1	260.4	265.3	274.9	283.4	304.9	310.4
Miscellaneous prod.	215.9	220.9	223.8	226.2	227.9	228.4	234.9	236.9	240.8	250.5	257.3	269.5	285.8
Total, excl. fuel	221.9	227.2	230.8	233.7	236.5	239.2	244.7	251.6	256.3	266.8	274.8	293.3	306.6
Total, incl. fuel	273.1	278.6	282.5	286.0	288.7	290.5	296.5	305.9	327.3	391.5	426.0	456.2	484.9

Note: Based on prices as of first day of months shown.

Source: Economics and Finance Dept., AAR

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Market

CARLOADINGS

Loadings of revenue freight in the week ended July 19 totaled 404,057 cars, according to the Association of American Railroads. This was a decrease of 58,725 cars, or 12.7%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended July 19 are estimated at 16.6 billion, a decrease of 6.2% below the corresponding week of 1979.

REVENUE FREIGHT CARLOADINGS

Commodity	July 19 week	July 12 week
Grain	32,645	36,437
Farm products	4,397	4,689
Metallic ores	29,419	30,598
Coal	97,316	70,613
Crushed stone, gravel & sand	14,281	14,825
Nonmetallic minerals	16,234	17,009
Grain mill products	16,869	15,468
Food and Kindred products	17,239	16,755
Primary forest products	19,955	18,965
Lumber & wood products (except furniture)	8,506	7,342
Pulp, paper & allied products	19,106	16,995
Chemicals & allied products	23,465	24,208
Petroleum products	5,348	5,503
Stone, clay & glass products	14,787	14,739
Coke	4,098	3,871
Metals & products	12,407	12,118
Motor vehicles & equipment	11,588	12,575
Waste & scrap materials	9,570	9,116
Forwarder & shipping assn. traffic	9,387	8,683
All other carloads	37,298	34,912
LCL traffic	142	149
Total cars loaded	**404,057**	**375,570**
Cumulative total	**1980**	**1979**
29 weeks	**12,607,852**	**13,169,581**
Estimated revenue ton-miles (billions), 29 weeks	**510.0**	**496.8**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended July 12 totaled 27,786 cars (20.4% below the corresponding 1979 week) and 49,555 trailers or containers (down 19.5% from 1979). Cumulative volume for the first 28 weeks of 1980 is 903,804 cars (down 9.8% from 1979) and 1,643,613 trailers or containers (down 7.2% frm 1979).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended June 21 totaled 5.6 million tons (down 0.8% from 1979). Cars loaded totaled 81,958 (down 1.8% from 1979). Cumulative loadings for 1980 were up to 124.8 million tons (up 6.9% from 1979).

● *Alco Power, Inc.*—Will supply 72 Alco Power Boss Model 16-251F diesel engines to a French consortium, Francorail-MTE, that is building diesel-electric locomotives for the Iraq Republic Railways Organization. Societe MTE of Paris represented the consortium in negotiating the $22-million agreement with the Auburn, N.Y., firm.

● *Burlington Northern.*—Directors approved acquisition of $128-million worth of rolling stock as part of BN's 1981 capital program. Orders placed thus far include 35 2,300-hp and five 2,000-hp diesel-electric units from EMD, 15 3,000-hp units from GE, 1,000 jumbo covered hopper cars and 200 woodchip cars from FMC, 100 taconite cars from Paccar, 50 tank cars (for handling diesel fuel) from ACF, and 42 cabooses from Paccar's International Car subsidiary. In addition, BN will lease 150 100-ton bulkhead flatcars from Trailer Train and 20 pressure-differential covered hopper cars from North American Car. Yet to be announced are the builders for 300 dry vans for piggyback service and 100 enclosed trilevel auto racks.

● *CP Rail.*—Announced a 10-year, $200-million program to upgrade its locomotive fleet. Approximately $152 million will be invested in 160 new diesel-electric units, and $48 million will be spent to modify more than 400 existing units. The railroad will retire 300 first generation diesels.

● *London Transport.*—Awarded a contract to the Urban Transportation Development Corp. (UTDC) of Toronto, Ont., for development of technical designs for a steerable truck for use on London Underground trains. This contract, valued at $200,000, is the first phase of a three-phase London Transport program to reduce noise and wheel/rail problems. Later phases will include prototype testing and design work for production trucks.

● *New Jersey Department of Transportation.*—Awarded a $43-million contract to Bombardier-MLW for the supply of 57 push-pull cars for service on the Raritan Valley commuter line. The order was placed after a New Jersey court turned down a request by the Budd Co., an unsuccessful bidder, seeking to delay the award (*RA*, July 14, p. 46).

● *U.S. Department of Transportation.*—Awarded a four-year, $67,759,082 contract to Boeing Services International Inc. of Cocoa Beach, Fla., to operate and maintain the Transportation Test Center at Pueblo, Colo. Dynalectron Corp. of Albuquerque, N.M., holds the present contract, which it won in 1976. Dynalectron was unsuccessful in its bid for the new contract. Also bidding were FEECO (Federal Electric Co. and ENSCO, a joint venture), of Colorado Springs, and Lockheed Electronics Co. Inc. of Houston, Tex.